

REMARKS

Claims 1-10, 12-21, 26-35, 37-46, and 51-52 are pending and stand rejected in the Non-Final Office Action dated March 30, 2009. Claims 11, 22-25, 36, 47-50 were previously cancelled. Claims 1, 12, 14, 16, 26, 37, 39, and 41 are amended as set forth above. The detailed description is also amended as set forth above. It is submitted that no new matter has been added to the application by the amendments to the claims or the detailed description. Reconsideration of the application in accordance with the following remarks is respectfully requested.

Interview Summary

The undersigned appreciates the courtesy of the Examiner interview conducted on June 8, 2009. Examiner Max Shikhman, Supervisory Patent Examiner Vikkram Bali, Spencer Patterson, and Michael Henry participated in the interview. During the interview, representatives for Applicant presented arguments that the cited references have not been shown to teach, suggest, or disclose the feature of "combining the first probability and the second probability to calculate a probability that the one or more pixels represent the first feature or the second feature." Possible claim amendments that would further clarify distinctions between claim 1 and the cited references were discussed. No agreement was reached.

Claim Rejections Under 35 U.S.C. § 103(a)

Claims 1-10, 12-21, 26-35, 37-46, and 51-52 stand rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent Application Publication No. 2002/0126893 to Held *et al.* ("Held") and U.S. Patent Application Publication No. 2003/0007687 to Nesterov *et al.* ("Nesterov"). Claims 1 and 26 also stand rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent Application Publication No. 2006/0106112 to Chen *et al.* ("Chen") in view of Held and Nesterov.

Claim 1, as amended, recites, among other things:

calculating a redeye probability that one or more pixels in the target region represent a portion of an eye exhibiting a redeye effect, based at least in part on a color of the one or more pixels;

calculating a first probability that the one or more pixels in the target region represent the first feature based at least in part on a color of the one or more pixels;

calculating a second probability that the one or more pixels in the target region represent the second feature based at least in part on a color of the one or more pixels;

combining the first probability and the second probability according to a probability function to calculate a third probability that the one or more pixels represent the first feature or the second feature; and

computing a new color of the one or more pixels in the target region based at least in part on the redeye probability, the third probability that the one or more pixels represent the first feature or the second feature and the one or more spatial profile functions.

The present application describes an example implementation at pages 8 through 12. In the example, a new color for a pixel is computed based in part on "pRedeye" (an example probability that the pixel represents a portion of an eye exhibiting a redeye effect), "pSkinorHighlight" (an example probability that the one or more pixels represent skin or highlight), "pCiliaryProfile" (an example spatial profile function based in part on spatial properties of the ciliary margin region), and other values. Some example implementations may provide one or more of the benefits described by the present application.

The use of probability values and spatial profiles increases the accuracy of the color adjustment and provides a smoother, visually more pleasing, result in a larger range of images. The use of probability values and spatial profiles also eliminates the need to identify particular segments of the image. This reduces the amount of computation required for the adjustment and enables adjustment to occur even for images that cannot be segmented.

Present Application, p. 3, ll. 9-16.

The cited references, taken alone or in combination, have not been shown to teach, suggest, or disclose multiple features recited in claim 1. For example, the cited portion of *Held* (¶¶ 101-03) describes a "mask" that indicates "the probability whether a certain pixel belongs to a red-defect region or not." *Held* at ¶ 102. But the cited portion of *Held* does not disclose combining two different probabilities to calculate a third probability. See *id.* at 101-03. To the extent that the mask of *Held* may include a different probability value for each region of an image, *Held* has not been shown to disclose that the probability values of the mask are ever

combined according to a probability function to calculate a third probability that one or more pixels represent a first feature or a second feature. For at least this reason, *Held* has not been shown to disclose at least the features of “combining the first probability and the second probability according to a probability function to calculate a third probability that the one or more pixels represent the first feature or the second feature,” or “computing a new color of the one or more pixels in the target region based at least in part on the redeye probability, the third probability that the one or more pixels represent the first feature or the second feature and the one or more spatial profile functions.” Indeed, the Office Action acknowledges that *Held* does not disclose changing a color using a spatial profile function. Office Action, p. 4.

As another example, *Chen* also fails to disclose multiple features of claim 1. Indeed, the Office Action acknowledges that “*Chen* does not disclose computing a new color.” Office Action, p. 12. In addition, *Chen* explains that “the present invention classifies a pixel as an iris or a non-iris pixel,” and *Chen* has not been shown to describe probabilities relating to any other element of a face region besides the iris. *Chen*, ¶ 32. For example, while $P(\text{iris})$ is “the probability of the occurrence of an iris in the face oval region,” $P(\text{noniris})$ is simply “the probability of the occurrence of a non-iris pixel.” *Id.* at ¶ 36. Thus, $P(\text{iris})$ and $P(\text{noniris})$, as described by *Chen*, both relate to the iris and do not appear to be related to any second feature. *See id.* As such, *Chen* has not been shown to describe a “predefined set of features including at least a first feature, a second feature, and a third feature,” “a first probability that the one or more pixels in the target region represent the first feature,” and “a second probability that the one or more pixels in the target region represent the second feature.” Indeed, $P(\text{iris})$ and $P(\text{noniris})$ are used in equation 48 in FIG. 4A of *Chen* to calculate $P(\text{iris}|\text{I})$, a quantity that represents “the conditional probability that a given pixel intensity belongs to an iris” and has not been shown to relate to any second feature. *Id.* at ¶ 38 (emphasis added). For at least these reasons, *Chen* has not been shown to disclose at least the features of “combining the first probability and the second probability according to a probability function to calculate a third probability that the one or more pixels represent the first feature or the second feature,” or “computing a new color of the one or more pixels in the target region based at least in part on the redeye probability, the third

probability that the one or more pixels represent the first feature or the second feature and the one or more spatial profile functions.”

With regard to *Nesterov*, the Office Action alleges that *Nesterov* discloses “one or more spatial profile functions.” See Office Action, pp. 2-5 and pp. 11-13. *Nesterov* has not been shown to disclose at least the features of “combining the first probability and the second probability according to a probability function to calculate a third probability that the one or more pixels represent the first feature or the second feature; and computing a new color of the one or more pixels in the target region based at least in part on the redeye probability, the third probability that the one or more pixels represent the first feature or the second feature and the one or more spatial profile functions.”

Moreover, the cited references fail to disclose multiple features of the claims, even in view of the asserted combinations of references. For example, the Office Action alleges that it would have been obvious to combine the alleged spatial profile function of *Nesterov* with Equation 1.3 of *Held* to arrive at the feature of “computing a new color of the one or more pixels in the target region based at least in part on the probability that the one or more pixels represent the first feature or the second feature and the one or more spatial profile functions.” Office Action, pp. 4-5, 13. As explained above, neither *Held* nor *Nesterov* describes a third probability that the one or more pixels represent the first feature or the second feature. For example, Equation 1.3 of *Held*, the alleged spatial profile function of *Nesterov*, nor any combination of the two have been shown to include this feature. As such, the alleged combination of *Held* and *Nesterov* does not teach the feature of “computing a new color of the one or more pixels in the target region based at least in part on the redeye probability, the third probability that the one or more pixels represent the first feature or the second feature and the one or more spatial profile functions.”

As another example, the Office Action alleges on page 14 that “it would have been obvious . . . [to] use Chen’s method of locating iris color pixels, then correct redeye using Held’s method.” Office Action, p. 12 (emphasis added). As such, modifying *Held* and *Nesterov* in view of *Chen*, as alleged by the Office Action, does not address the deficiencies of *Held* and

Nesterov described above. In particular, the Office Action concedes that even if *Chen* were combined with *Held* and *Nesterov*, the red-defect correction allegedly taught by *Held* and *Nesterov* would be unchanged. See *id.* Indeed, the Office Action admits that “*Chen* does not disclose computing a new color.” *Id.* Thus, the alleged combination of *Held* and *Nesterov* in view of *Chen* is deficient, and does not teach at least the feature of “computing a new color of the one or more pixels in the target region based at least in part on the redeye probability, the third probability that the one or more pixels represent the first feature or the second feature and the one or more spatial profile functions.” Moreover, as explained above, neither *Held*, *Nesterov*, nor *Chen* has been shown to disclose “a third probability that the one or more pixels represent the first feature or the second feature.”

Accordingly, *Held*, *Nesterov*, and *Chen*, taken alone or in combination, have not been shown to teach, suggest, or disclose the features of claim 1, and the rejections of claim 1 and its dependent claims are deficient. Claim 26, as amended, recites features that are analogous to the features of claim 1. For at least the same reasons discussed above with regard to claim 1, *Held*, *Nesterov*, and *Chen*, taken alone or in combination, have not been shown to teach, suggest, or disclose the features of claim 26, and the rejections of claim 26 and its dependent claims are deficient. Accordingly, it is respectfully requested that the rejections of claims 1-10, 12-21, 26-35, 37-46, and 51-52 be withdrawn.

CONCLUSION

An earnest attempt to place this case in condition for allowance has been made. It is believed that all of the pending claims have been addressed. It is noted that the absence of a reply to a specific rejection, issue or comment does not signify agreement with or concession of that rejection, issue or comment. In addition, because the arguments made above may not be exhaustive, there may be reasons for patentability of any or all pending claims (or other claims) that have not been expressed. Finally, nothing in this paper should be construed as an intent to concede any issue with regard to any claim, except as specifically stated in this paper, and the amendment of any claim does not necessarily signify concession of unpatentability of the claim prior to its amendment. For the foregoing reasons, and for other reasons clearly apparent, full allowance of all Claims is respectfully requested.

If the present application is not allowed and/or if one or more of the rejections is maintained, a telephone conference with the Examiner and request that the Examiner contact the undersigned agent to schedule the telephone conference is hereby requested.

No fees are believed to be due. However, the Commissioner is hereby authorized to charge any required fees or credit any overpayments to deposit account 06-1050 referencing the above attorney docket number.

Respectfully submitted,

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